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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/601,617 | 06/23/2003 | Louis A. Lippincott | 42P17012 | 8912 |
| 8791 7590 05/31/2007 BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD SEVENTH FLOOR LOS ANGELES, CA 90025-1030 | | | EXAMINER NGUYEN, HAU H | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/601,617

Applicant(s)

LIPPINCOTT ET AL.

Examiner

Hau H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. The response filed 3/21/2007 has been considered in preparing this Office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6-9, 11-13, 18-22, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Littlefield (U.S. Patent No. 4,949,280) in view of Sullivan et al. (U.S. Patent No. 6,891,893).

Referring to claim 1, Littlefield teach a system as shown in Fig. 5, comprising a plurality of processing elements (29) of a media signal processor 28, a selection unit (interconnection network 18), a plurality of hardware accelerators (12), a memory interface 18, and a random access memory 14 coupled to the memory interface, wherein the graphics system 10 is driven by the host 28 via multiple data paths each with a separate graphics command stream. The interconnection network 18 can be utilized to connect each application processor 29 within the host 28 with any of the graphics processors 12 (col. 7, lines 19-34).

Littlefield fails to teach enabling a hardware accelerator selected from a plurality of hardware accelerators according at least one bit of a register within the register file set by a processing element, and granting the processing element ownership over the

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selected hardware accelerator. However, this is what Sullivan et al. teach (see Figs. 2 and 5, col. 7, line 62 to col. 8, line 37, and col. 27, line 51 to col. 28, line 19, and the disclosure of **Auto-Negotiation Data Structure**, Sullivan et al.).

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Sullivan et al. in combination with the method as taught by Littlefield in order to identify the capability of multimedia processing of each hardware accelerator, and therefore, to improve multimedia processing performance (col. 8, lines 10-14).

As per claims 2 and 3, although not explicitly taught by Littlefield, Sullivan et al. teach enabling a processing element to set a bit when the process desired selection of a hardware accelerator / designating at least one register to receive control commands from the plurality of processing elements (by setting the bits in the ConnectMode/ConnectConfig data structure, see disclosure of **Auto-Negotiation Data Structure**), and activating the selected hardware accelerator to perform a media processing function (Fig. 5, col. 27, line 51 to col. 28, line 19). Thus, claims 2 and 3 would have been obvious.

Claim 4, which is similar in scope to claims 1-3, is thus rejected under the same rationale.

Claims 6-9, 11-13, 21-22, which are similar in scope to claims 1-5, and thus are rejected under similar rationale.

As per claims 18-20, Sullivan et al. teach the hardware accelerators are multimedia accelerators, which can perform image, video, and audio processing (col. 1, lines 21-24).

As per claims 27 and 28, although Littlefield and Sullivan et al. fails to explicitly teach or suggest the RAM is a SDRAM and/or DDRSDRAM, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to replace one type of RAM to another type of RAM is considered within the level of ordinary skill in the art based on the system requirement, for example, some want speed (fast) over cost (more expensive for fast memory).

4. Claims 5, 10, 14-17, 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Littlefield (U.S. Patent No. 4,949,280) in view of Sullivan et al. (U.S. Patent No. 6,891,893) further in view of Rentschler et al. (U.S. Patent No. 5,940,086).

As per claim 5, as cited above, Littlefield and Sullivan in combination teach identifying a processing element have written the control command (as included in the API 104, Sullivan et al.); determining, according to the control command, an input data stream for the selected hardware accelerator (Fig. 5, Sullivan et al.); determining, according to the control command, an output data stream for the selected hardware accelerator (such as, for displaying); directing the selecting hardware accelerator to perform a media processing function according to a received control command (performing multimedia command processing, Sullivan et al.); updating a control bit within a register file to indicate whether data is available for one or more data

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dependent processing elements (updating API 104 upon agreeing on media processing format, Sullivan et al.);

Thus, Littlefield and Sullivan et al. teach all the limitations of claim 5, except for requiring the one or more data dependent processing elements to wait to execute instructions until the data it needs to execute the instructions is available in one or more register.

However, Rentschler et al. discloses a method for dynamically allocating data among geometry accelerators (GAs) in a computer graphics system, comprising a distributor 118 for dynamically distributing graphics data to a respective geometry accelerator depending on availability status level. The status levels of the geometry accelerator are Completely Available, Substantially Available, Partially Available, and Unavailable status, wherein the unavailable status indicate a significant wait before the GA will be capable of processing (col. 3, line 54 through col. 4, line 12).

Therefore, it would have been obvious to one skilled in the art to utilize the method as taught by Rentschler et al. in combination with the method as taught by Littlefield and Sullivan et al. in order to significantly increase in the throughput performance of the computer graphics system obtained by selectively utilize the geometry accelerators (col. 3, lines 3-9).

Claims 10, 14-17, 23-26, which are similar in scope to claim 5, are thus rejected under the same rationale.

Response to Arguments

5. Applicant's arguments filed 3/21/2007 have been fully considered but they are not persuasive. In response to Applicant's arguments that the cited prior art fails to teach enabling a hardware acceleration selected from a plurality of hardware accelerators according to at least one bit of a register within the register file set by a processing element, and granting the processing element ownership over the selected hardware accelerator, the examiner disagrees. First and foremost, the examiner relied on the teachings of both references Littlefield and Sullivan, not individually to reject the claims. In Littlefield, as shown in Fig. 5, the interconnection network interconnect a plurality of processing elements 29, with a plurality of hardware accelerators 12. Fig. 7 shows a detailed internal block diagram of the routing node 22 in the interconnection network, states "*The leading bits of the data stored in each register 38 and 40 are evaluated by associated routing determination logic 46, 47 to generate XFR PORT OUT to the next node.*" (col. 8, lines 40-60). Thus, in the configuration of Fig. 5 and 7, one of the processing elements 29 eventually enables (via the data input) one of the plurality of hardware accelerators 12 according to at least one bit of a register in the register files 38 and 40 set by the processing element, and therefore, granting the processing element 29 ownership over the selected hardware accelerator, as broadly interpreted. Similarly, in Sullivan, as shown in Figs. 2 and 5, one of the plurality of the processing elements 160A-N enables (via API 104) one of the plurality of hardware accelerators (174A-174N) (col. 8, lines 18-25). For at least the above reasons, the combined cited

references meet the minimum requirements of the claim limitations. The rejection is therefore proper and maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

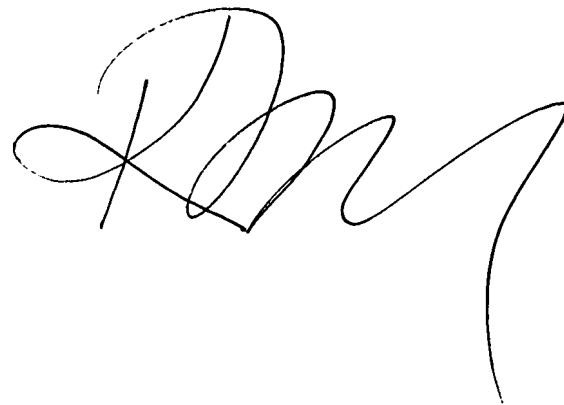
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hau H. Nguyen whose telephone number is (571) 272-7787. The examiner can normally be reached on 8:30am-5:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

H. Nguyen

5/23/2007

A handwritten signature in black ink, appearing to read 'K. M. Tung', with a long, sweeping vertical line extending downwards from the end of the signature.

KEE M. TUNG
SUPERVISORY PATENT EXAMINER